UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
DOAN, PHUOC HUU

ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/584,467	RUNE ET AL.
Office Action Summary	Examiner	Art Unit	
	PHUOC H. DOAN	2617	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-47</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-47</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some *   c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date <u>06/22/06</u>.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claims 1, 8, 13, 20, 29 are objected under 37 CFR 1.75 because the

antecedent basis of the following phrase (or claimed material) is not taught in the

specification:

>   As to claim 1, claim recited **"more DHQ node(s)"** should be change to
>
>   "more DHO node(s)".

>   As to claim 8, 13, 20, 29, claim recited **"the DUO Node(s)"** should be
>
>   change to "the DHO Node(s).

>   As to claim 9, claim recited **"in the ENC"** should be change to "in the
>
>   RNC".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.   Claims 1-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over

LAKKAKORPI (WO 03/096733) in view of Wu (US Pub No: 2002/0082015).

As to claim 1, LAKKAKORPI discloses a method for selecting one or more

Diversity Handover, DHO "page 1, lines 4 (Macro Diversity Combining MDC

point)", nodes, such as a Node B or a Radio Network Controller, RNC, executing a

macro diversity functionality, in a mobile telecommunication network wherein the

macro diversity functionality is distributed to one or a plurality of DHO nodes such

as a RNC and its connected Node B(s) in said network, the method comprising

(page 7, lines 1-21 "inter-working with legacy, gateways to a core network. An

interface is needed between the base stations, supporting both control plane

signaling user plane traffic by RAN Gateway (RNGW), the mobile devices plane

sw2itching during the relocation/handover of base station is responsible for the

association between RAN tunnels and core network tunnels"): a. obtaining

topology information comprising a hop-by-hop route from the RNC to each of its

connected Node Bs and at least one metric for each hop in the route (page 7, lines

22-35 "the total hop count of MDC legs and the paths from the RNGW A to the

MDC point, which the real time traffic load on used links"), and b. using an

algorithm for selecting one or more DHQ node(s), whereby the algorithm

comprises the steps of: forming a macro diversity tree of the routes by means of the

obtained topology information (page 9, lines 9-15 "OSPF routing protocol to make

a single path is in use between two network nodes"), and selecting the Node B(s)

and/or the RNC and/or other DHO enabled node(s), that result in the best

accumulated metric for all potential data flows between the RNC and its connected

Node B(s) in the macro diversity tree of routes, as the DHO node(s) (page 7, lines

22-35, page 9, lines 9-15), checking that a maximum allowed delay is not exceeded

for a data path for each of the selected one or more DHO node(s) by using the

delay metric from the topology information, and if the maximum allowed delay is

exceeded (page 11, lines 1-14 "the real time threshold constraints are met",

performing a delay reduction procedure until the maximum allowed delay is not

exceeded (page 11, lines 25-30 "the priority is applied by minimizing the

maximum real time traffic load for the MDC point candidates, the OSPF routing

protocol can loading balance the traffic path"), wherein the delay reduction

procedure comprises the step of: removing already selected macro diversity

enabled nodes (page 11, lines 15-29 "the candidate is dropped from the list of remaining MDC point candidates"). However, Wu does not disclose that performing a delay metric.

In the same field of endeavor, Wu discloses performing a delay metric (page 6, par. [0077] "the most critical performance metric in a mobile environment is the delay due to handover"). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide that performing a delay metric as taught by Wu to the system of LAKKAKORPI in order to reduce the delay of messages routing.

As to claim 2, LAKKAKORPI further discloses the method according to claim 1, wherein the topology information further comprises for each non-DHO enabled node in the topology information an indication of the closest DHO enabled node (page 9 through page 10, lines 33-5).

As to claim 3, LAKKAKORPI further discloses the method according to claim 1, wherein the forming-step comprises the further steps of: identifying branching nodes in said tree of routes (page 9, lines 9-15 "OSPF routing protocol identifying nodes between any network nodes if basic OSPF is used"), and identifying the

relative interconnections of said branching nodes and the connections to Node Bs

and the RNC of said branching nodes (page 9, lines 1-15).

As to claim 4, LAKKAKORPI further discloses the method according to claim 1,

wherein the at least one metric comprises a delay metric and a generic cost metric

and that the step of selecting the DHO Node(s) with the best accumulated metric

comprises the steps of: selecting the DHO node(s) resulting in the smallest

accumulated cost for all potential data flows between the RNC and its connected

Node B(s) in the macro diversity tree (page 7, lines 1-22), as the DHO node(s), if

the accumulated cost is substantially the same for two potential DHO nodes,

selecting as the DHO node the potential DHO node that results in the smallest

accumulated delay metric for all potential data flows between the RNC and its

connected Node B(s) in the macro diversity tree (page 7 through page 8, lines 29-

8).

As to claim 5, LAKKAKORPI further discloses the method according to claim 1,

wherein the at least one metric comprises a generic cost (See Abstract "an

optimized combining point can be obtained to thereby lower delays for combined

traffic and increase efficiency of network utilization").

As to claim 6, Wu further discloses the method according to claim 1, wherein the

at least one metric comprises a delay metric (page 6, par. [0077-0079] "reduce a

delay metric by applied the applications of trans-coding proxy").

As to claim 7, LAKKAKORPI further discloses the method according to claim 1,

wherein the method comprises the further step of: combining the delay metric with

node synchronisation measurement in order to determine if the maximum delay is

exceeded (page 11 through page 12, lines 30-5, lines25-31 "applied OSPD routing

with loading balance included real time load with sync is obtained by calculating to

set a set of value").

As to claim 8, LAKKAKORPI further discloses the method according to any claim

1, wherein the at least one metric comprises a delay metric and a generic cost

metric and the step of selecting the DUO Node(s) with the best accumulated metric

comprises the further steps of: tentatively selecting a DHO node (page 15, lines 5-

20), checking whether the delay of a potential data flow between the RNC and one

of its connected Node Bs would exceed a maximum allowed delay if it were to

traverse the tentatively selected DHO node (page 15, lines 5-25), and selecting the

tentatively selected DHO node as a DHO node for said potential data flow if said

maximum allowed delay is not exceeded (page 11, lines 25-30 "the priority is

applied by minimizing the maximum real time traffic load for the MDC point

candidates, the OSPF routing protocol can loading balance the traffic path", and

page 15, lines 5-30).

As to claim 9, LAKKAKORPI further discloses the method according to claim 1,

wherein the topology information is obtained through manual or semi-automatic

management operations in the ENC (Assume ENC is a RNC, page 9, lines 1-15).

As to claim 10, LAKKAKORPI further discloses the method according to claim 1,

wherein the topology information is obtained via a link state routing protocol used

in the transport network (page 9, lines 10-15 "OSPF Routing Protocol").

As to claim 11, LAKKAKORPI further discloses the method according to claim 1,

wherein the topology information is obtained by using a traceroute mechanism that

allows the RNC to discover the hop-by-hop route to each Node B (page 9, lines 9-

15 "OSPF recited on router which allows using a traceroute to discover the hop by

hop or router to router").

As to claim 12, LAKKAKORPI further discloses the method according to claim 1,

wherein the topology information is obtained by retrieving the topology

information from a RNC in the network (page 8 through page 9, lines 31-10

"ITRM would use a multicast like approach to periodically distribute load report to

all MDC capable base station").

As to claim 13, LAKKAKORPI further discloses the method according to claim 1,

wherein the method comprises the further steps of: preparing a DUO related

signalling message to be conveyed to a DHO tree node that is a node that is or is

planned to be a part of a macro diversity tree, including in the signaling message

one or more transport layer addresses and one or more transport bearer reference

parameters in order to direct one or more inter-DHO tree node data flows of the

macro diversity tree, and sending said signaling message to said DHO tree node in

order to provide DUO related instructions to said DUO tree node (page 9, lines 1-

24 "OSPF routing protocol is network/transport layer of OSI that use for number of

hop and provide the DHO node connection link between any difference network").

As to claim 14, LAKKAKORPI further discloses the method according to claim

13, wherein the including-step comprises the further step of: replacing the transport layer address and transport bearer reference parameter of an RNC by the transport layer address and transport bearer reference parameter of a DHO tree node that is hierarchically higher than said DHO tree node in a regular signaling message sent to said DHO tree node in order to direct a data flow between said DHO tree node and said higher DHO tree node in the DHO tree node hierarchy (page 9, lines 1-24, page 10, lines 1-26 "transport layer address used by OSPF with selection criteria for the priority based on the threshold value to determine in a particular handover situation").

As to claim 15, LAKKAKORPI further discloses the method according to claim 13, wherein the including step comprises the further step of: including one or more transport layer addresses and one or more transport bearer reference parameters of one or more DHO tree node(s) that are hierarchically lower than said DHO tree node in a signalling message sent to said DHO tree node in order to direct one or more data flows between said DHO tree node and said one or more lower DHO tree node(s) in the DHO node hierarchy (page 9, lines 1-24, page 10, lines 1-26 "transport layer address used by OSPF with selection criteria for the priority based on the threshold value to determine in a particular handover situation").

As to claim 16, LAKKAKORPI further discloses the method according to claim

13, wherein said transport layer addresses are IP addresses and said transport

bearer reference parameters are UDP ports (page 7, lines 5-10).

As to claim 17, LAKKAKORPI further discloses the method according to claim

13, wherein said transport layer addresses are ATM addresses and said transport

bearer reference parameters are SUGR parameters (page 7, lines 5-10 "IP

addresses supported at the level Network/Transport layer of OSI and the same

function of transport layer addresses of ATM, for example, OSPF routing protocol

has to go by with IP addresses").

As to claim 18, LAKKAKORPI further discloses the method according to claim

13, further comprising the step of: including in the signaling message Quality of

Service (QoS) indications for the data flow(s) to be directed (page 14, lines 1-3

"measurement results either through a centralized resource or in a distributed

manner among the network nodes is needed if traffic load or MDC processing

loads are used in the MDC point selection process in term of message Quality of

Service indication for data flows").

As to claim 19, LAKKAKORPI further discloses the method according to claim

13, further comprising the step of: including timing parameters in the signaling

message to be used in the uplink combining procedure in the DHO tree node

receiving said signaling message (page 7, lines 1-21 "both control plane signaling

and user plane traffic").

As to claim 20, LAKKAKORPI further discloses the method according to claim

13, further comprising the step of: including a time indication in the signaling

message indicating when the DUO related instructions in the signalling message

are to be effectuated in the DUO tree node receiving said signaling message (page

7, lines 1-21 "both control plane signaling and user plane traffic").

As to claim 21, LAKKAKORPI further discloses the method according to claim

20, wherein said time indication is a connection frame number, CFN, pertaining to

a Dedicated Channel Frame Protocol, DCH FP, in a UMTS Terrestrial Radio

Access Network, UTRAN (page 7, lines 1-21 "IP based core network supported

nodes to a RAN during the relocation or handover of base station and IP protocol

supported the signaling path between networks with associated a Dedicated

Channel Frame Protocol").

As to claim 22, LAKKAKORPI further discloses the method according to claim 13, wherein said signaling message is sent from a RNC (page 7, lines 1-10).

As to claim 23, LAKKAKORPI further discloses the method according to claim 22, wherein said signaling message is a Node B Application Part, NBAP, message (page 7, lines 1-21).

As to claim 24, LAKKAKORPI further discloses a computer program product directly loadable into the internal memory of a computer within a Radio Network Controller and/or a Node B in a mobile telecommunication network, comprising the software code portions for performing the steps of claim 1 (page 7, lines 1-21, and page 8, lines 9-17 "used software code as shown in Equation (1)").

As to claim 25, LAKKAKORPI further discloses a computer program product stored on a computer usable medium, comprising a readable program for causing a computer, within a Radio Network Controller and/or a Node B in a mobile telecommunication network, to control an execution of the steps of claim 1 (page

7, lines 1-21, and page 8, lines 9-17 "used software code as shown in equation

(1)").

As to claim 26, claim is rejected for the same reasons as set forth in claim 1.

As to claim 27, claim is rejected for the same reasons as set forth in claim 2.

As to claim 28, claim is rejected for the same reasons as set forth in claim 3.

As to claim 29, claim is rejected for the same reasons as set forth in claim 4.

As to claim 30, claim is rejected for the same reasons as set forth in claim 5.

As to claim 31, claim is rejected for the same reasons as set forth in claim 6.

As to claim 32, claim is rejected for the same reasons as set forth in claim 7.

As to claim 33, claim is rejected for the same reasons as set forth in claim 8.

As to claim 34, claim is rejected for the same reasons as set forth in claim 9.

As to claim 35, claim is rejected for the same reasons as set forth in claim 10.

As to claim 36, claim is rejected for the same reasons as set forth in claim 11.

As to claim 37, claim is rejected for the same reasons as set forth in claim 12.

As to claim 38, claim is rejected for the same reasons as set forth in claim 13.

As to claim 39, claim is rejected for the same reasons as set forth in claim 14.

As to claim 40, claim is rejected for the same reasons as set forth in claim 15.

As to claim 41, claim is rejected for the same reasons as set forth in claim 16.

As to claim 42, claim is rejected for the same reasons as set forth in claim 17.

As to claim 43, claim is rejected for the same reasons as set forth in claim 18.

As to claim 44, claim is rejected for the same reasons as set forth in claim 19.

As to claim 45, claim is rejected for the same reasons as set forth in claim 20.

As to claim 46, claim is rejected for the same reasons as set forth in claim 21.

As to claim 47, claim is rejected for the same reasons as set forth in claim 23.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUOC H. DOAN whose telephone number is 571-272-7920. The examiner can normally be reached on 9:30 AM - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, VINCENT HARPER can be reached on 571-272-7605. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR

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direct.uspto.gov. Should you have questions on access to the Private PAIR system,

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would like assistance from a USPTO Customer Service Representative or access to

the automated information system, call 800-786-9199 (IN USA OR CANADA) or

571-272-1000.

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